

## ECA Update: January 15, 2016

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**State senator: Washington small reactor report promising**  
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A newly completed report shows promising potential for small modular nuclear reactors in Washington state, according to Sen. Sharon Brown, R-Kennewick, a proponent of nuclear power.

She got \$176,000 approved last year for the report by the Washington Energy Facility Site Evaluation Council, which coordinates the evaluation and licensing steps for certain energy facilities in the state and specifies the conditions of construction and operation.

The development of small modular reactors “has the potential for significant improvements in nuclear plant siting associated with cost, safety, permitting schedule, generation flexibility and site requirements,” the report concluded. It was prepared for the state agency by Golder Associates.

The reactors, which would have capacity of 300 megawatts or less per module, could be built in a factory and then transported to an operating location, improving construction quality and efficiency, the report said. They could be placed underground for protection from natural hazards and man-made hazards, such as airplane

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### Calendar

#### **DOE Consent-Based Siting Public Meeting**

January 20, 2016  
1 PM - 4 PM EST  
Marriott Renaissance  
Washington, DC,  
Downtown Hotel  
999 9th St NW,  
Washington, DC 20001  
Click here to register for the [Webcast](#).

#### **FY17 Budget Request**

impacts.

The small reactors would have the potential for significant, steady generation of carbon-free power, the report said.

“It is a win for our environment and a win for our economy,” Brown said in a statement. “... promoting the growth of the nuclear industry in Washington could mean thousands of good-paying, family wage jobs in construction, manufacturing and other related high-tech fields.”

The public and government agencies may have concerns about nuclear waste disposal, transportation of fuel, and nuclear power in general, the report cautioned.

But the potential for advances in safety and licensing processes offered by small modular reactors “have generated interest in Washington, the United States and around the world,” it said. China, India, Russia, Argentina and South Korea have small reactors in design or construction.

Brown is concerned that other states, including Idaho and Oregon, already are making a play for small modular reactor technology, making them direct regional competitors with Washington for possible new jobs.

Wednesday she introduced Senate Bill 6224 to act on recommendations in the new report.

“It is important that we look for ways to streamline the siting and licensing process so that Washington can be a leader in this field and an attractive location for those in development, production and commercialization of SMR technology,” Brown said.

Her bill would eliminate an early-stage land use hearing that is required now. The report found that land use regulations have diluted the value of the hearing. Land use still would be considered as part of the environmental study.

Brown’s bill also would set expedited deadlines for state work. For instance, if the Energy Facility Site Evaluation Council conducts an informational public hearing it must be within 30 days of an application for certification of a project.

The report considered the suitability of different regions of the state for a small modular nuclear reactor, finding that Hanford and

February 9th, 2016

**Save the Date:**  
DOE National Cleanup  
Workshop  
September 14-15, 2016  
Hilton Alexandria Mark  
Center  
Alexandria, VA

the Tri-Cities area are generally suitable, if the sites are not near an active seismic fault.

#### Small Modular Reactors report

Existing power plant sites in the state are likely candidates for suitable locations, the report said. Suitable sites include the Columbia Generating Station near Richland, a 1,100-megawatt nuclear power plant, and the two sites where the Washington Public Power Supply System once planned to build nuclear plants at Hanford.

An application to the state for a small modular reactor is not likely for eight to 10 years, the report said. In time the state may want to commission a study to evaluate the potential cost of future power to ratepayers, including the federal government's commitment to cover some of the cost risks of the new technology.

It also recommended a poll of Washington residents on their acceptance of nuclear power.

"Many Washington residents are cautious about nuclear power," given the environmental cleanup of nuclear weapons waste at Hanford and the bond default of the Washington Public Power Supply System, the report said.

Concerns also have been raised by the Fukushima nuclear disaster in Japan and the lack of a national repository for used commercial nuclear fuel.

There also are residents across the state, particularly in the Tri-Cities area, who support the economic benefits of nuclear-related activities, it said.

#### **Crapo bill would create new nuclear energy research initiative at INL**

Local 8 News

January 14, 2016

[LINK](#)

The Idaho National Laboratory would be the center of a major new nuclear energy research initiative if legislation being introduced by Senator Mike Crapo becomes law. A bi-partisan companion bill cleared the U.S. House sub-committee on Science, Space, and Technology this week.

The Nuclear Energy Innovation Capabilities Act (NEICA) would require the Department of Energy to work with private partnerships to test and demonstrate new reactor concepts. INL would house demonstration facilities.

DOE would also report to Congress on another mission focusing on a versatile neutron source, including fast neutron spectrum irradiation capability. That is another potential mission for INL researchers.

"This legislation represents an opportunity to build upon the capabilities of the INL while sending a very important message to the private industry," said Crapo. "That message is this: American entrepreneurs and investors should continue to invest in advanced nuclear technology and they should do it in the United States instead of going overseas."

Crapo said he hoped it would encourage entrepreneurs to invest in technology that would drive innovation in an otherwise stagnant industry.

Crapo's bill is co-sponsored by Idaho Senator Jim Risch and democratic Senators Sheldon Whitehouse of Rhode Island and Cory Booker of New Jersey.

The concept is also a spin-off of President Obama's Gateway for Accelerated Innovation in Nuclear (GAIN) initiative. GAIN was created to resolve technical, cost, safety, proliferation resistance, and security barriers in advanced nuclear technologies as a clean-energy alternative.

### **US funding package supports rising SMR activity**

Nuclear Energy Insider

January 12, 2016

[LINK](#)

New US legislation has increased funding for Small Modular Reactor licensing and signals strong support for advanced reactor technology in the shift to low carbon generation.

US government support is required to propel advanced nuclear plants towards commercial deployment. (Image credit: sdominik) The fiscal 2016 Omnibus Appropriations Act was signed into law December 18, boosting nuclear energy funding from \$914 million

in 2015 to \$986 million in 2016.

Within this plan, the government raised funding for SMR Licensing from \$55 million to \$63 million, signaling higher activity in SMR licensing this year. Funding for reactor Research and Development (R&D) rose from \$133 million to \$141 million. The new funding boost came just a month after The White House announced its new Gateway for Accelerated Innovation in Nuclear (GAIN), designed to “provide the nuclear energy community with access to the technical, regulatory, and financial support necessary to move new or advanced nuclear reactor designs toward commercialization.”

Under the GAIN Plan, announced at a White House Summit on Nuclear Energy, the government is to increase its \$12.5 billion loan guarantee program for innovative nuclear energy projects—including SMRs. The guarantees will also apply to licensing costs, such as design certification, construction permits and combined construction and operating licenses, the White House said in a statement.

Alex Flint, senior vice president of the Nuclear Energy Institute, welcomed the government’s new initiatives.

“I am very encouraged that Capitol Hill recognizes that small and advanced reactors hold great promise as a future source of low-carbon electricity, a vital component of a diversified electricity portfolio, and as an export technology that can create many thousands of U.S. jobs,” Flint said in a statement January 7.

“We applaud the President’s new initiatives and have no doubt that they may benefit early stage advanced reactors that require substantial research and development to move them forward to commercialization,” Fred Moore, Executive Director Emeritus of Next Generation Nuclear Plant (NGNP) Industry Alliance, an alliance of High Temperature Gas-cooled Reactor developers, told Nuclear Energy Insider.

The nuclear pledges come on top of the Clean Power Plan, announced by President Obama in August, which is expected to see nuclear retain a 20% share of the US power generation mix by 2030.

“The recent White House Summit on Nuclear also sends a clear message about nuclear energy and its importance to the environment and energy,” Moore said.

## New applications

The development of SMRs has progressed significantly in recent years and has been boosted by global carbon emissions initiatives and national regulation which will cut coal-fired power generation in the coming years.

According to American think tank Third Way, there are presently six SMRs in development in the US:

- B&W Company and Bechtel Power Corp, Charlotte, North Carolina
- NuScale Power, Corvallis, Oregon
- Radix Power and Energy Corp, Setauket, New York
- Holtec, Jupiter, Florida
- Westinghouse, Fulton, Missouri
- General Atomics, San Diego, California

NuScale is expected to file the first full design license application for an SMR later this year. The Oregon based developer was an early mover in the design licensing process, starting its NRC design certification pre-application project back in 2008. NuScale plans to submit its license application in late 2016 under a DoE funding agreement which will provide the firm with \$217 million towards the design certification application and other commercialization engineering, analysis and testing.

NuScale is the largest single recipient of DoE funding for SMR licensing and development and the government's support mechanism requires the group to execute testing programs in support of design development and NRC review requirements.

According to Tony Roulston, Lecturer Nuclear Energy at University of Cambridge, UK, NuScale's application to the NRC will be the first real test for SMR technology maturity and a significant step towards the introduction of new SMR technology in US, UK and beyond.

Issues yet to be fully addressed include the control and monitoring of multiple reactors on one site, instrumentation and control systems for multiple reactors, and the expectation of much smaller Emergency Planning Zones (EPZ) than for larger capacity nuclear power plants, Roulston told NEI's Small Modular Reactor UK conference last October.

A key argument by developers is that the smaller reactor core and

other innovative safety features of the individual SMR designs means these plants require a smaller EPZ than the 10-mile radius required for the US' operational Light Water Reactor fleet. The smaller EPZs would allow SMRs to be sited on existing power generation sites closer to densely populated areas, such as former coal power stations, and NRC agreed last year to develop design-specific guidelines for SMRs.

Giorgio Locatelli, Lecturer in infrastructure procurement and management at the University of Leeds, told the NEI conference the considerable work on EPZs already undertaken by NuScale highlights that licensing is a "discussion that takes a long time and takes money."

NuScale benefits from having major engineering and construction group Fluor as its majority stakeholder and the developer has projected it will take 3 ½ years to receive Design Certification approval after submission. The company plans to build its first commercial plant in late 2023 for owner-operator Utah Associated Municipal Power Systems (UAMPS).

SMR projects which have engaged in NRC pre-application work In a bid to accelerate wider development, the government's GAIN program includes the launch of a single point of contact for companies through the DoE's clean Energy Investment Centre, a database of nuclear energy infrastructure equipment and companies, and further support from the DoE on the Nuclear Regulatory Commission's regulations and licensing processes.

The DoE will provide small business "vouchers" of up to \$2 million per company to access the knowledge and capabilities of the DoE and will "work through GAIN with prospective applicants for advanced nuclear technology to understand and navigate the regulatory process for licensing new reactor technology," the government said.

The costs incurred in the licensing phase are considerable for all advanced technologies and will "require a Public Private Partnership (PPP) between industry and the federal government," Moore said.

"A PPP is necessary due to the long lead time periods, and these lead times make the financial risk/reward a very real challenge for virtually every nuclear company. This is potentially exacerbated in the US due to the regulatory uncertainty still associated with licensing SMRs and advanced reactors."

Proponents of SMR plants say innovations such as their high level of passive or inherent safety systems, and smaller modular design mean the licensing process can be streamlined.

Moore believes a streamlining of the regulatory procedures for new designs is absolutely crucial to support the development of advanced nuclear technology.

“Some of the tests (to gain approval) require significant time; more money won’t accelerate the process, but will ensure the tests are maintained and completed,” he said.

“In general, designing, licensing, and deploying an advanced reactor will require long-term significant investment with a combination of private investment, venture capital, and government investment,” Moore said.

### **Panel approves nuclear energy research bill**

The Hill

January 12, 2016

[LINK](#)

A House committee approved a bipartisan bill Tuesday promoting research and development funding for nuclear energy in the United States.

The bill directs the Department of Energy to prioritize nuclear energy research that utilizes private sector funding.

It would allow private firms to partner with federally-run national labs to research nuclear reactor technologies and allow Energy Department researchers to use the national labs' supercomputers in their nuclear energy studies.

The legislation also calls for the Energy Department to complete a research reactor within the next ten years.

The Science, Space and Technology Committee approved the bill on a unanimous voice vote on Tuesday. The legislation is co-sponsored by Committee Chairman Lamar Smith (R-Texas), ranking member Eddie Bernice Johnson (D-Texas) and Rep. Randy Weber (R-Texas).

Both sides lauded the bill — and the chance to expand nuclear



power in the United States.

“Strategic investments in advanced nuclear reactor technology should play a much more meaningful role in reducing global emissions,” Smith said at Tuesday’s hearing.

“However, our ability to move from R and D to market deployment has been hampered by government red tape. The U.S. has not lived up to its potential when it comes to nuclear energy.”

Johnson, while co-sponsoring the bill, said she would like to see it recommend funding levels for the DOE’s nuclear energy research program.

“Implementing the provisions in this bill will help accelerate the development of advanced nuclear energy technologies that are safer, less expensive, more efficient, and produce less waste than the current generation of nuclear reactors,” she said.

“While I do recognize the difficulty of authoring funding levels these days, I think it is an important function of our committee. As we move this bill forward, I hope it is something we can revisit.”